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10/030,269	06/27/2002	Toshio Ota	217925USOXPCT	9017

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EXAMINER	
WAX, ROBERT A	

ART UNIT	PAPER NUMBER
1653	

DATE MAILED: 05/12/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/030,269	OTA ET AL.	
	Examiner	Art Unit	
	Robert A. Wax	1653	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *26 February 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *18-68* is/are pending in the application.

4a) Of the above claim(s) *19, 20,26-36,38,44 and 55-68* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *18,21-25,37,39-43 and 54* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☒ Claim(s) *18-68* are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *01082002*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Election/Restrictions

1. Applicant's election with traverse of Group I, claims 18, 21-25, 37, 39-43 and 54 in Paper No. 02262004 is acknowledged. The traversal is on the ground(s) that the Office has not established that the different groups are independent and distinct from each other. This is not found persuasive because, contrary to Applicants' position the disclosure of Kato et al. (WO 98/21328) of a sequence meeting a limitation of claim 1 shows that the sequence makes no contribution over the prior art and, therefore, the claims do not share a corresponding special technical feature. Applicants are correct about Group IV, that group **does** consist of claims **29** and 47, not **27** and 47. Examiner apologizes for the mistake.

The requirement is still deemed proper and is therefore made FINAL.

2. The following should have appeared in the written restriction and is included here to address applicants' concerns about rejoinder. As stated below, should DNA claims be found allowable then claims of the same scope to processes of their use will be rejoined and examined.

The examiner has required restriction between product and process claims. Where applicant elects claims directed to the product, and a product claim is subsequently found

allowable, withdrawn process claims that depend from or otherwise include all the limitations of the allowable product claim will be rejoined in accordance with the provisions of MPEP § 821.04. **Process claims that depend from or otherwise include all the limitations of the patentable product** will be entered as a matter of right if the amendment is presented prior to final rejection or allowance, whichever is earlier. Amendments submitted after final rejection are governed by 37 CFR 1.116; amendments submitted after allowance are governed by 37 CFR 1.312.

In the event of rejoinder, the requirement for restriction between the product claims and the rejoined process claims will be withdrawn, and the rejoined process claims will be fully examined for patentability in accordance with 37 CFR 1.104. Thus, to be allowable, the rejoined claims must meet all criteria for patentability including the requirements of 35 U.S.C. 101, 102, 103, and 112. Until an elected product claim is found allowable, an otherwise proper restriction requirement between product claims and process claims may be maintained. Withdrawn process claims that are not commensurate in scope with an allowed product claim will not be rejoined. See "Guidance on Treatment of Product and Process Claims in light of *In re Ochiai, In re Brouwer* and 35 U.S.C. § 103(b)," 1184 O.G. 86 (March 26, 1996). Additionally, in order to retain the right to rejoinder in accordance with the above policy, Applicant is advised that the process claims should be amended during prosecution either to maintain dependency on the product claims or to otherwise include the limitations of the product claims. **Failure to do so may result in a loss of the right to rejoinder.**

Further, note that the prohibition against double patenting rejections of 35 U.S.C. 121 does not apply where the restriction requirement is withdrawn by the examiner before the patent issues. See MPEP § 804.01.

Priority

3. The current application filed on June 27, 2002 is a 371 of PCT/JP00/04515 filed on June 6, 2000, which in turn claims priority to provisional application, 60/159,586 filed on October 18, 1999.

Information Disclosure Statement

4. The information disclosure statement filed January 8, 2002 has been considered. Please see the attached initialed PTO-1449.

Claim Rejections - 35 USC § 112, Second Paragraph

5. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

6. Claims 18, 21-25, 37, 39-43 and 54 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 18, 24, 25, 37, 42 and 43 each recite, in part (c), "typically 10% or less." It is unclear what percentage is actually being claimed because what others "typically" do is not a positive recitation of a claim limitation. The other claims are included in this rejection because they do not rectify the noted deficiency.

The claims are also rendered indefinite by the term "homology". This term has many meanings, usually; sequences are homologous if they are evolutionarily related somehow. What little discussion there is in the specification is on page 8, which directs one to use BLAST to determine homology. It is unclear from the specification what definition of "homology" applicants intend. Sequences compared by percent identity need less definition since "identity" means if the bases match they are identical. Homologous sequences, however, may contain mismatches that are not identical but are nevertheless homologous since they may represent conservative substitutions. Thus, the metes and bounds of the claims to polynucleotides that are defined by percent homology are not clear.

Claims 37 and 39-43 are confusing. Claim 37 recites, "encoding a partial peptide of a protein" but the other limitations of the claim are the same as claim 18. How does this define a portion of a polypeptide?

Claims 24, 25, 42 and 43 are also incorrect in that they depend from a nonelected claim.

Claim Rejections - 35 USC § 112, First Paragraph – Written Description

7. The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

8. Claims 18, 21-25, 37, 39-43 and 54 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The claims lack adequate written description for three reasons. They are, first, the functional equivalents, second, the polynucleotides that hybridize to SEQ ID Nos.: 1, 3, 5, 7 or 9 under conditions less stringent than 0.1 X SSC, 0.1% SDS, 65°C and, third, polynucleotides that have less than 95% identity to SEQ ID Nos.: 1, 3, 5, 7 or 9. Each aspect will be discussed sequentially.

Claims 18, 21-25, 37, 39-43 and 54 are directed, in part, to polynucleotides encoding proteins that are functionally equivalent to the proteins of SEQ ID Nos. 2, 4, 6, 8 or 10 in which one or several amino acids of the amino acid sequence have been substituted, deleted, inserted and/or added wherein the overall percentage of mutations is typically 10% or less. The specification, however, only provides a single

representative example, residues 1-28 of aβ, encompassed by these claims. There is no disclosure of any particular structure to function/activity relationship in the single disclosed species. The specification fails to describe additional representative species of functional equivalents by any identifying structural characteristics or properties, for which no predictability of structure is apparent.

The Court of Appeals for the Federal Circuit has recently held that a "written description of an invention involving a chemical genus, like a description of a chemical species, 'requires a precise definition, such as be structure, formula [or] chemical name,' of the claimed subject matter sufficient to distinguish it from other materials." *University of California v. Eli Lilly and Co.*, 1997 U.S. App. LEXIS 18221, at *23, quoting *Fiers v. Revel*, 25 USPQ2d 1601, 1606 (Fed. Cir. 1993).

Although SEQ ID Nos: 1, 3, 5, 7 and 9 are disclosed in the specification and the specification contains some discussion of functional equivalents, there is no evidence that the inventors were in possession of the extremely large number of polynucleotides included in section (c) of the above claims at the time of filing. To satisfy the written description aspect of 35 U.S.C. 112, first paragraph, for a claimed genus of molecules, it must be clear that: (1) the identifying characteristics of the claimed molecules have been disclosed, e.g., structure, physical and/or chemical characteristics, functional characteristics when coupled with a known or disclosed correlation between function and structure, or a combination of these; and (2) a representative number of species within the genus must be disclosed. The above claims, as written, fail to satisfy the written description requirement.

Insufficient identifying characteristics of the claimed molecules have been disclosed. Part (c) polynucleotides may have any number of substitutions, deletions or additions (since the "typical" value of 10% is nonlimiting) and the polynucleotide of part (e) may be 5-40% different and no identifying characteristics for those polynucleotides have been disclosed. The absence of such disclosure evidences that applicants were not in possession of any polypeptides within the scope of parts (c) and (e) other than polynucleotides having the exact sequences. A representative number of species within the genus has not been disclosed. The specification discloses the representative species of SEQ ID Nos: 1, 3, 5, 7 and 9 but provides no information as to any structure-function relationship between that sequence and the claimed functional equivalents or homologous sequences.

Claims 18, 21-25, 37, 39-43 and 54 are directed, in part, to polynucleotides that hybridize to SEQ ID Nos.: 1, 3, 5, 7 or 9 under conditions less stringent than 0.1 X SSC, 0.1% SDS, 65°C. The specification provides three examples of so-called stringent hybridization conditions a page 7, last paragraph. It is well known that conditions may be varied over a wide range of conditions that still may be considered stringent; applicants discuss this on page 7 of the specification as well.

The Court of Appeals for the Federal Circuit has recently held that a "written description of an invention involving a chemical genus, like a description of a chemical species, 'requires a precise definition, such as be structure, formula [or] chemical name,' of the claimed subject matter sufficient to distinguish it from other materials."

University of California v. Eli Lilly and Co., 1997 U.S. App. LEXIS 18221, at *23, quoting *Fiers v. Revel*, 25 USPQ2d 1601, 1606 (Fed. Cir. 1993).

Although SEQ ID Nos: 1, 3, 5, 7 and 9 are disclosed in the specification and the specification contains some discussion of hybridization conditions, there is no evidence that the inventors were in possession of the extremely large number of polynucleotides that would hybridize under some undefined conditions. To satisfy the written description aspect of 35 U.S.C. 112, first paragraph, for a claimed genus of molecules, it must be clear that: (1) the identifying characteristics of the claimed molecules have been disclosed, e.g., structure, physical and/or chemical characteristics, functional characteristics when coupled with a known or disclosed correlation between function and structure, or a combination of these; and (2) a representative number of species within the genus must be disclosed. The above claims, as written, fail to satisfy the written description requirement.

Insufficient identifying characteristics of the claimed molecules have been disclosed. It is unpredictable what polynucleotides will hybridize under unspecified conditions and no identifying characteristics for those polynucleotides have been disclosed. As the hybridization conditions become less stringent the predictability that polynucleotides that hybridize will encode proteins having the same function as the parent sequence also goes down. Therefore, the structure/function relationship is unclear. The absence of such disclosure evidences that applicants were not in possession of any polypeptides within the scope of part (d) of the claims other than polynucleotides having the exact sequences. A representative number of species within

the genus has not been disclosed. The specification discloses the representative species of SEQ ID Nos: 1, 3, 5, 7 and 9 but provides no information as to any structure-function relationship between that sequence and the claimed polynucleotides that would hybridize under less than the above-specified conditions.

Claims 18, 21-25, 37, 39-43 and 54 are directed, in part, to polynucleotides showing at least 60%, 70%, 80% or 90% homology to SEQ ID Nos.: 1, 3, 5, 7 or 9. The specification provides no representative examples of such polynucleotides encompassed by these claims. There is no disclosure of any particular structure to function/activity relationship. The specification fails to describe additional representative species by any identifying structural characteristics or properties, for which no predictability of structure is apparent.

The Court of Appeals for the Federal Circuit has recently held that a "written description of an invention involving a chemical genus, like a description of a chemical species, 'requires a precise definition, such as be structure, formula [or] chemical name,' of the claimed subject matter sufficient to distinguish it from other materials." *University of California v. Eli Lilly and Co.*, 1997 U.S. App. LEXIS 18221, at *23, quoting *Fiers v. Revel*, 25 USPQ2d 1601, 1606 (Fed. Cir. 1993).

Although SEQ ID Nos: 1, 3, 5, 7 and 9 are disclosed in the specification and the specification contains some discussion of homology at page 8, first paragraph, there is no evidence that the inventors were in possession of the extremely large number of polynucleotides included in section (e) of the claims at the time of filing. To satisfy the written description aspect of 35 U.S.C. 112, first paragraph, for a claimed genus of

molecules, it must be clear that: (1) the identifying characteristics of the claimed molecules have been disclosed, e.g., structure, physical and/or chemical characteristics, functional characteristics when coupled with a known or disclosed correlation between function and structure, or a combination of these; and (2) a representative number of species within the genus must be disclosed. The above claims, as written, fail to satisfy the written description requirement.

Insufficient identifying characteristics of the claimed molecules have been disclosed. Part (e) polynucleotides may be 5-40% different and no identifying characteristics for those polynucleotides have been disclosed. The absence of such disclosure evidences that applicants were not in possession of any polypeptides within the scope of part (e) other than polynucleotides having the exact sequences. A representative number of species within the genus has not been disclosed. The specification discloses the representative species of SEQ ID Nos: 1, 3, 5, 7 and 9 but provides no information as to any structure-function relationship between that sequence and the claimed homologous sequences.

For the above reasons, claims 18, 21-25, 37, 39-43 and 54 fail to satisfy the written description requirement.

Claim Rejections - 35 USC § 112, First Paragraph – Enablement

3. Claims 18, 21-25, 37, 39-43 and 54 are rejected under 35 U.S.C. 112, first paragraph, because the specification, while enabling for (1) polynucleotides that comprise a nucleotide sequence as set forth in SEQ ID Nos.: 1, 3, 5, 7 or 9, (2) polynucleotides that encode a protein having a amino acid sequence as set forth in SEQ ID Nos.: 2, 4, 6, 8 or 10, (3) polynucleotides that hybridize under stringent conditions to a polynucleotide comprising a nucleotide sequence as set forth in SEQ ID NO. 1, 3, 5, 7 or 9 wherein the "stringent conditions" are 0.1 X SSC, 0.1% SDS, 65°C (specification at page 7, line 28), and (4) polynucleotides that show at least 95% identity to SEQ ID Nos.: 1, 3, 5, 7 or 9, does not reasonably provide enablement for "functional equivalents" of the above polynucleotides, polynucleotides that hybridize under stringent conditions to a polynucleotide comprising a nucleotide sequence as set forth in SEQ ID NO. 1, 3, 5, 7 or 9 wherein the "stringent conditions" are less stringent than 0.1 X SSC, 0.1% SDS, 65°C nor polynucleotides that show 60%, 70%, 80% or 90% homology to SEQ ID Nos.: 1, 3, 5, 7 or 9. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the invention commensurate in scope with these claims.

The criteria for determining undue experimentation, summarized in *In re Wands* 858 F.2d 731, 8 USPQ2nd 1400 (Fed. Cir, 1988), are: 1) the quantity of experimentation

necessary, 2) the amount of direction or guidance presented, 3) the presence or absence of working examples, 4) the nature of the invention, 5) the state of the prior art, 6) the relative skill of those in that art, 7) the predictability or unpredictability of the art, and 8) the breadth of the claims.

Since there are three parts to this rejection they will be discussed separately. For the purposes of this rejection, Examiner uses "homology" to mean "identity".

In the instant case, with regard to the "functional equivalents", 1) the quantity of experimentation necessary is large since the number of changes that may be made are unlimited; even if the 10% limitation were applied there would still be many changes to be made, 2) the amount of direction or guidance presented is small; the only alleged functional equivalent is the peptide comprising residues 1-28 of Aβ. There is no discussion of structural features that make a peptide a "functional equivalent" and no direction as to which changes may be made while still retaining the activity of Aβ. Continuing with 3) the specification contains working examples wherein the only test compound is $A\beta_{1-28}$, 4) the nature of the invention is the discovery of a portion of APP that suppresses or promotes the aggregation or deposition of Aβ, 5) the state of the prior art is such that other portions of APP have been described with the same activity and the same protein is taught by Kato et al. (WO 98/21328), 6) the relative skill of those in this art is extremely high, at the level of holders of medical degrees or PhDs, 7) the predictability of the art is low as evidenced by the large amount of research going into discovering what different portions of APP do and the fact that one reference, Jones

et al., teach portions bordering the instant one but missed the instant portion entirely, and 8) the claims are extremely broad, at least with regard to the "functional equivalents". The instant specification provides insufficient guidance to allow the skilled artisan to predict beforehand the effects of particular substitution and/or insertion mutations on Aβ. Since inadequate guidance is provided to allow prediction of the effect of a given mutation, determination of the full spectrum of Aβ mutants that would have the activity of the wild-type protein would require that the skilled artisan make and test a large number of the possible mutants.

With regard to the polynucleotides that hybridize under stringent conditions to a polynucleotide comprising a nucleotide sequence as set forth in SEQ ID NO. 1, 3, 5, 7 or 9 wherein the "stringent conditions" are less stringent than 0.1 X SSC, 0.1% SDS, 65°C, 1) the quantity of experimentation necessary is large since the number of variables are large and the possible conditions that could be selected is large; in addition, each polynucleotide that hybridizes has to be tested as to function and this would increase the amount of experimentation significantly, 2) the amount of direction or guidance presented is small; only three conditions are named, 3) the specification contains no working examples of polynucleotides that hybridize to SEQ ID Nos.: 1, 3, 5, 7 or 9, 4) the nature of the invention is polynucleotide encoding a portion of amyloid precursor protein (APP) that suppresses or promotes the aggregation or deposition of Aβ, 5) the state of the prior art is such that polynucleotides encoding the instant portion of APP is taught by Kato et al. (WO 98/21328), 6) the relative skill of those in this art is

extremely high, at the level of holders of medical degrees or PhDs, 7) the predictability of the art is low as evidenced by the large amount of research going into discovering what different portions of APP do, and 8) the claims are extremely broad, at least with regard to the polynucleotides that hybridize under so-called stringent conditions.

In addition, Applicants have not described which meaning of the term "stringent" they intend to use sufficiently enough to enable one of skill in the art to practice the invention. Nucleic acid hybridization assays are extremely sensitive to the conditions in which they are performed. The buffer composition, pH, temperature, length of time, salt concentrations, quality and source of template nucleic acid, are all variables which determine the reproducibility of a given hybridization experiment. Given the unpredictability of the art and the nature of hybridization experiments in general, it is not sufficient to provide three different hybridization conditions that may be construed as being "stringent". The definition of "stringency" as it pertains to hybridization conditions is subject to interpretation and is different from laboratory to laboratory. Therefore, without a clear and explicit recitation of what conditions are meant to be included by the term "stringent", and without a clear and explicit recitation of the conditions which were actually used by Applicants in isolating polynucleotides which hybridize to DNA having SEQ ID Nos: 1, 3, 5, 7 and 9, the skilled artisan would not be able to practice the claimed invention and would not be reasonably apprised of the metes and bounds of the claimed invention. The last paragraph on page 7 of the specification discusses hybridization conditions and discuss what is involved in achieving a specific level of

stringency. Specific conditions are vital since the claims rely on hybridization to one of the sequences recited in the claims. Without such guidance, the experimentation left to those skilled in the art is undue. Including in the claims the exact nature of the hybridization conditions used to isolate the claimed polynucleotides would aid in overcoming this portion of the rejection.

With regard to the polynucleotides that that show 60%, 70%, 80% or 90% homology to SEQ ID Nos.: 1, 3, 5, 7 or 9, (1) the quantity of experimentation necessary is large since the number of sequences falling within the specified levels of homology is large; in addition, each of those polynucleotides need to be tested as to function and this would increase the amount of experimentation significantly, 2) the amount of direction or guidance presented is zero, 3) the specification contains no working examples of polynucleotides that show the recited homology, 4) the nature of the invention is polynucleotide encoding a portion of amyloid precursor protein (APP) that suppresses or promotes the aggregation or deposition of Aβ, 5) the state of the prior art is such that polynucleotides encoding the instant portion of APP is taught by Kato et al. (WO 98/21328), 6) the relative skill of those in this art is extremely high, at the level of holders of medical degrees or PhDs, 7) the predictability of the art is low as evidenced by the large amount of research going into discovering what different portions of APP do, and 8) the claims are extremely broad, at least with regard to the polynucleotides that show the claimed levels of homology.

Thus, when the Wands factors are analyzed, the conclusion of undue experimentation, and, therefore, nonenablement, is inescapable.

Claim Rejections - 35 USC § 101

9. 35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

10. Claims 18, 21-25, 37, 39-43 and 54 are rejected under 35 U.S.C. 101 because the claimed invention is not supported by either a specific and substantial asserted utility or a well-established utility.

It is clear from the specification that proteins encoded by SEQ ID Nos.: 1, 3 and 7 have utility since they suppress the aggregation or deposition of Aβ which makes them useful to at least treat Alzheimer's disease. Thus, those aspects of the invention are not included in this rejection.

It is also clear from the specification that proteins encoded by SEQ ID Nos.: 5 and 9 promote the aggregation or deposition of Aβ. Clearly, this makes them unsuitable to treat Alzheimer's disease; in fact, it would appear that administration of these polypeptides would exacerbate the disease. No utility is asserted in the specification other that promoting the aggregation of Aβ, which seems to have no substantial utility

since, as stated above, it is useless to treat Alzheimer's, which is the utility asserted for the other sequences.

Claims 18, 21-25, 37, 39-43 and 54 are also rejected under 35 U.S.C. 112, first paragraph. Specifically, since the claimed invention is not supported by either a specific and substantial asserted utility or a well established utility for the reasons set forth above, one skilled in the art clearly would not know how to use the claimed invention.

Claim Rejections - 35 USC § 102

11. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

12. Claims 18, 21, 37, 39 and 54 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by Kato et al.

Kato et al. teach SEQ ID No. 68, which is a polynucleotide 99.7% identical to SEQ ID No. 1 (see page 53 under the section entitled <HP10297> (Sequence Number 18, 43, 68) and the sequence alignment. The sequence of Kato et al. differs at positions 81 and 183 using the numbering according to instant SEQ ID No. 1. The codons are (SEQ ID No. 1 vs. SEQ ID No. 68) GCC vs. GCT at position 81 and CAT vs.

CAC at position 183. Both GCC and GCT encode Alanine and both CAT and CAC encode Histidine, therefore, both sequences encode the same polypeptide.

Claim Rejections - 35 USC § 103

13. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

14. Claims 18, 21-25, 37, 39-43 and 54 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kato et al.

The teachings of Kato et al. are outlined above.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to place the constructs containing SEQ ID No. 68 taught by Kato et al. into cells for expression with the expectation of obtaining a useful protein product. Kato et al. must have expressed the protein since they provide Figure 21 showing the hydrophobicity/hydrophilicity profile of the protein.

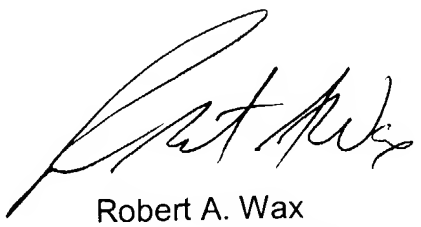
Conclusion

15. No claim is allowed.

16. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Robert A. Wax whose telephone number is (571) 272-0623. The examiner can normally be reached on Monday through Friday, between 9:00 AM and 5:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Christopher S. F. Low can be reached on (571) 272-0951. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Robert A. Wax
Primary Examiner
Art Unit 1653